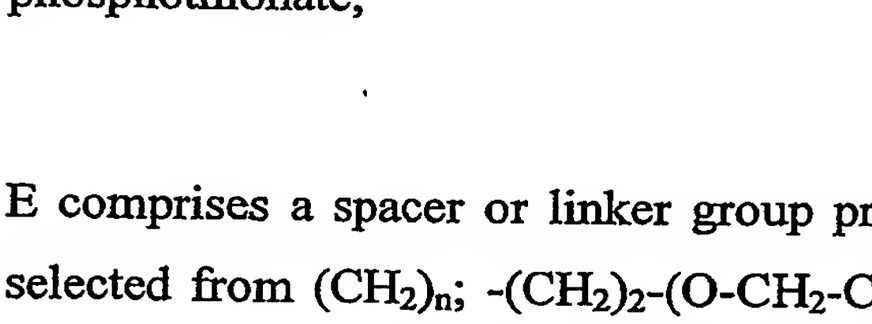
WHAT WE CLAIM IS:

1. A synthetic molecule of formula I:

A-B-E-D (I)

wherein A represents R, or a glyceride group having the formula Ia or Ib:



(Ia)

(Ib)

wherein R is H or a linear or branched alkyl of up to 40 carbon atoms; R_1 and R_2 are independently H, alkyl or acyl and wherein the alkyl or acyl groups are linear or branched having up to 40 carbon atoms;

B is selected from the group comprising phosphate, phosphonate, sulfonate, carbamate, and phosphothionate;

E comprises a spacer or linker group providing a linkage between groups B and D and is selected from $(CH_2)_n$; $-(CH_2)_2-(O-CH_2-CH_2)_n-$; -cyclohexyl-; and $-CHR_3-CHR_4-$ wherein R_3 and R_4 are independently H, CH_2OH, CH_2-, or $(CH(OH))_m-CH_2OH$ or $CH((CHOH)_mCH_2OH)-$; and wherein n=1 to 40 and m=1 to 6;

D comprises at least one sugar moiety selected from the group comprising D-mannose, D-galactose, D-glucose, D-glucosamine, N-acetylglucosamine, and 6-deoxy-L-mannose, wherein when D is more than one sugar moiety, the sugar moiety may comprise a single chain of the same or different sugar moieties, or may comprise two or more separate sugar moieties or chains of sugar moieties attached to E at different sites;

with the proviso that when E is $-(CH_2)_n-$ wherein n=2 to 16, B is phosphate and D is a monosaccharide or an oligosaccharide, R_1 and R_2 of A are not both alkyl.

2. A synthetic molecule as claimed in claim 1, wherein R is a linear or branched alkyl of between 6 and 22 carbon atoms.

3. A synthetic molecule as claimed in claim 2, wherein R is a linear or branched alkyl of between 10 and 20 carbon atoms.

4. A synthetic molecule as claimed in claim 3, wherein R is a linear or branched alkyl of between 16 and 20 carbon atoms.

5. A synthetic molecule as claimed in any one of claims 1-4, wherein the alkyl or acyl groups of R_1 and R_2 are linear or branched having between 6 and 22 carbon atoms.

6. A synthetic molecule as claimed in claim 5, wherein the alkyl or acyl group s of R_1 and R_2 are linear or branched having between 10 and 20 carbon atoms.

7. A synthetic molecule as claimed in claim 6, wherein the alkyl or acyl groups of R_1 and R_2 are linear or branched having between 16 and 20 carbon atoms.

8. A synthetic molecule according to claim 1, wherein D comprises a monosaccharide or oligosaccharide chain of 2 to 12 α-1,2 and/or α-1,6 linked sugar moieties which are O-linked to carbon atoms on spacer group E.

9. A synthetic molecule as claimed in claim 8, wherein D comprises one or more monosaccharide or oligosaccharide chains of 2 to 6 sugar moieties.

10. A synthetic molecule as claimed in any one of claims 1-9 wherein one or more of the sugar moieties D are acylated.

11. A synthetic molecule as claimed in any one of claims 1-10, wherein R_1 and R_2 are fatty acids independently selected from the group comprising myristate, palmitate, heptadecanoate, stearate, tuberculostearate or linolenate; B is phosphate; E is $-CHR_3CHR_4-$, wherein R_3 is CH_2- and R_4 is H; and D is at least one sugar moiety comprising D-mannose or an oligosaccharide chain of α-1,2 and/or α-1,6-linked mannose residues.

12. A pharmaceutical composition comprising at least one compound of formula (I) as defined in claim 1, or a pharmaceutically acceptable salt thereof together with a pharmaceutically acceptable carrier.

13. A use of a compound of formula (I) as defined in claim 1 or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for treating or preventing an inflammatory or immune cell-mediated disease or disorder in a mammal in need thereof.

14. A use as claimed in claim 13, wherein said disease or disorder is elected from the group comprising asthma, allergic rhinitis, dermatitis, psoriasis, inflammatory bowel disease including Crohn's disease and ulcerative colitis, rheumatoid arthritis, multiple sclerosis, diabetes, systemic lupus erythmatosis and atherosclerosis.

15. A compound of formula (I) as defined in claim 1, or a pharmaceutically acceptable salt thereof, in the manufacture of an adjuvant for use in enhancing the immune response to an antigen in a mammal in need thereof.

16. An adjuvant composition comprising an effective adjuvanting amount of a compound of formula (I), as defined in claim 1, or a pharmaceutically acceptable salt thereof.

17. A method of treating or preventing an inflammatory or immune cell-mediated disease or disorder comprising administering an effective amount of a compound of formula (I), as defined in claim 1, or a pharmaceutically acceptable salt thereof to a patient in need thereof.

18. A method as claimed in claim 17, which the patient is a human patient.

19. A method as claimed in claim 17 or 18, were the inflammatory or immune cell-mediated disease or disorder is asthma, allergic rhinitis, dermatitis, psoriasis, inflammatory bowel disease including Crohn's disease and ulcerative colitis, rheumatoid arthritis, multiple sclerosis, diabetes, systemic lupus erythmatosis and atherosclerosis.

20. A process for preparing synthetic molecules of formula (I), as defined in claim 1, comprising the steps:

(I) modification of a benzylated allyl glycoside compound to form an intermediate by either;

(a) oxidative cleavage of the double bond and subsequent reduction to give an intermediate with an ethyl spacer and hydroxyl group for phosphorylation;

(b) hydroboration of the allyl group followed by alkaline hydrogen peroxide workup to give an intermediate with a propyl spacer and hydroxyl group for phosphorylation; or

(c) dihydroxylation of the double bond using a catalytic amount of osmium tetraoxide and excess N-methyl morpholine-1-oxide to give a glycosyl glycerol as an intermediate for futher modification;

(II) selective benzoylation of the glycosyl glycerol intermediate to form a glycosyl glycerol unit with the 2° hydroxyl group protected as a benzoyl ester;

(III) glycosylation of the 1° hydroxyl group of the intermediate compound and selective removal of the benzoyl protecting group;

(IV) phosphorylation of the 1° or 2° hydroxyl groups of the intermediate compound;

(V) removal of the benzyl protecting groups to form a compound of formula (I).

21. A process as claimed in claim 20, wherein step (I) (a) is carried out by using either a catalytic amount of osmium tetraoxide and an excess of sodium periodate followed by sodium borohydride reduction, or ozonolysis followed by a sodium borohydride workup.

22. A process as claimed in claim 20, wherein step (II) is carried out by temporary tritylation of the 1° hydroxyl group using trityl chloride and pyridine, addition of benzoyl chloride and acidic hydrolysis of the trityl group.

23. A process as claimed in claim 20, wherein step (III) is carried out by an N-iodosuccimide trifluoromethanesulfonate promoted glycosylation reaction with a perbenzylated glycosyl phosphite, or a trimethylsilyl trifluoromethaesulfonate promoted glycosylation reaction with a perbenzylated glycosyl trichloroimidate.

24. A process as claimed in claim 20, wherein step (IV) is carried out using:

(a) a 1,2-di-O-acyl-sn-glycero-3-H-phosphonate triethylammonium salt;

(b) *N,N*-diisopropyl 1,2-di-O-acyl-sn-glycero-3-phosphoramidite and subsequent oxidation with *m*-chloroperoxybenzoic acid; and

(c) *N,N*-diisopropyl alkylphosphoramidite and subsequent oxidation with *m*-chloroperoxybenzoic acid.

25. A process as claimed in claim 20, wherein step (V) is carried out by catalytic hydrogenolysis over palladium on carbon at either atmospheric or 300psi pressure of hydrogen.

26. A process for preparing synthetic molecules of formula (I) as defined in claim 1, comprising the steps

(I) glycoslation of a benzylated mono-acetylated diol followed by deacetylation;

(II) phosphorylation of the 1° or 2° hydroxyl groups of the compound of step (I);

(III) removal of the benzyl protecting groups to form a compound of formula (I).

27. A process as claimed in claim 26, wherein step (I) is carried out by an N-iodosuccimide trifluoromethanesulfonate promoted glycosylation reaction with a perbenzylated glycosyl phosphite, or a trimethylsilyl trifluoromethanesulfonate promoted glycosylation reaction with a perbenzylated glycosyl trichloroimidate.

28. A process as claimed in claim 26, wherein step (II) is carried out using:

(a) a 1,2-di-O-acyl-sn-glycero-3-H-phosphonate triethylammonium salt;

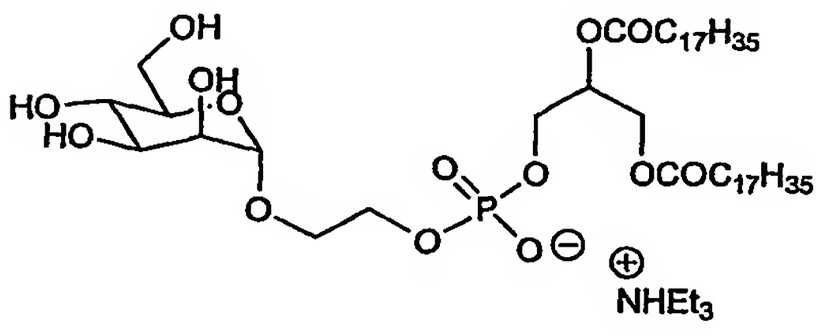
(b) *N,N*-diisopropyl 1,2-di-O-acyl-sn-glycero-3-phosphoramidite and subsequent oxidation with *m*-chloroperoxybenzoic acid; and

(c) *N,N*-diisopropyl alkylphosphoramidite and subsequent oxidation with *m*-chloroperoxybenzoic acid.

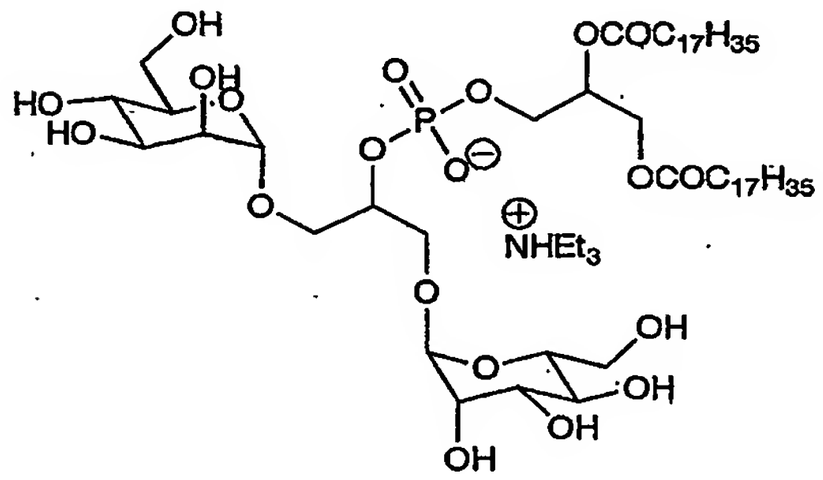
29. A process as claimed in claim 26, wherein step (III) is carried out by catalytic hydrogenolysis over palladium on carbon at either atmospheric or 300psi pressure of hydrogen.

30. A compound of formula (I), as defined in claim 1, prepared by the process of claim 20 or 26.

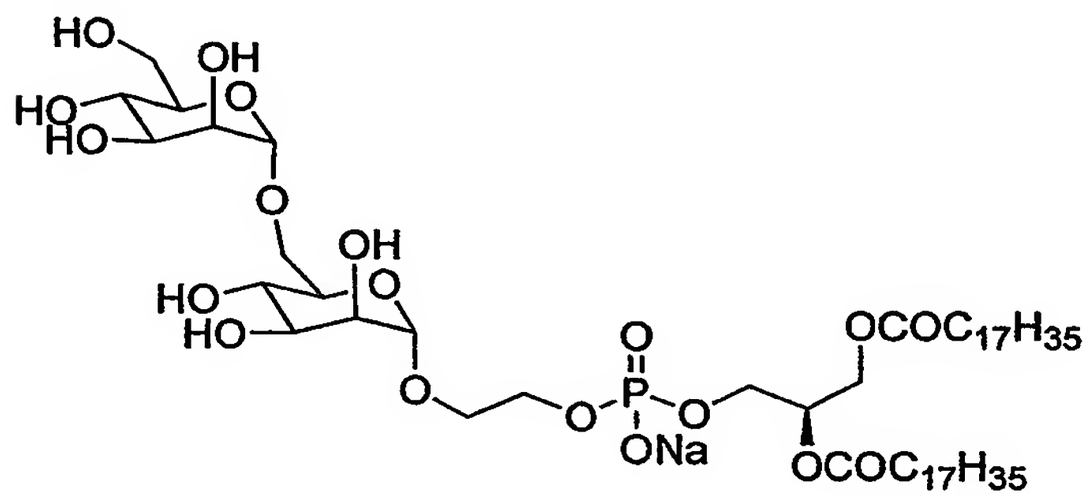
31. A compound of formula (I), as defined in claim 1, comprising



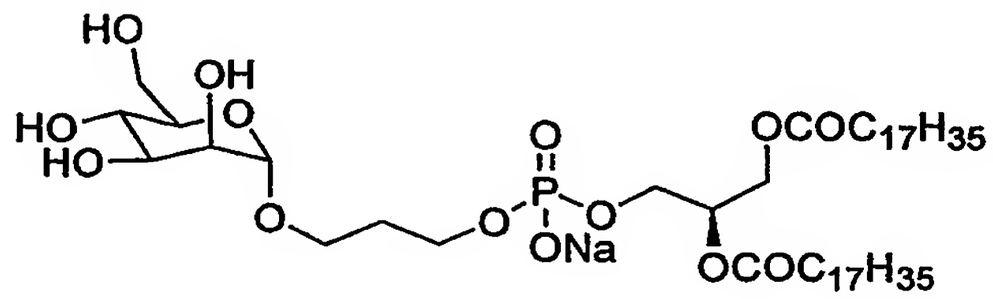
32. A composition of formula (I), as defined in claim 1, comprising



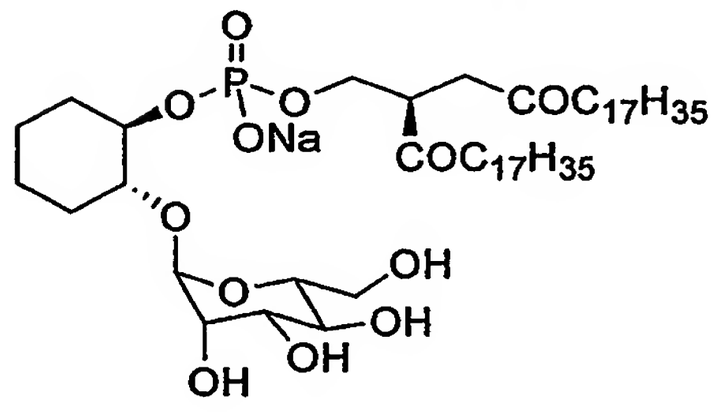
33. A composition of formula (I), as defined in claim 1, comprising



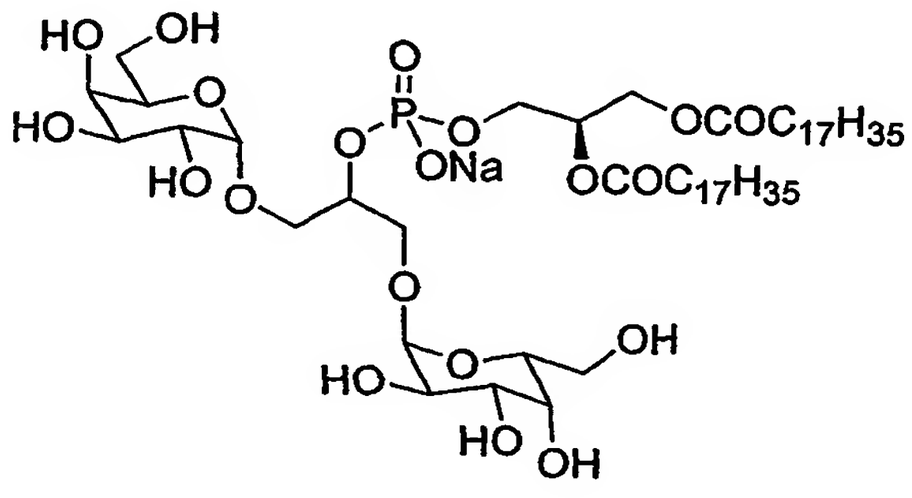
34. A composition of formula (I), as defined in claim 1, comprising



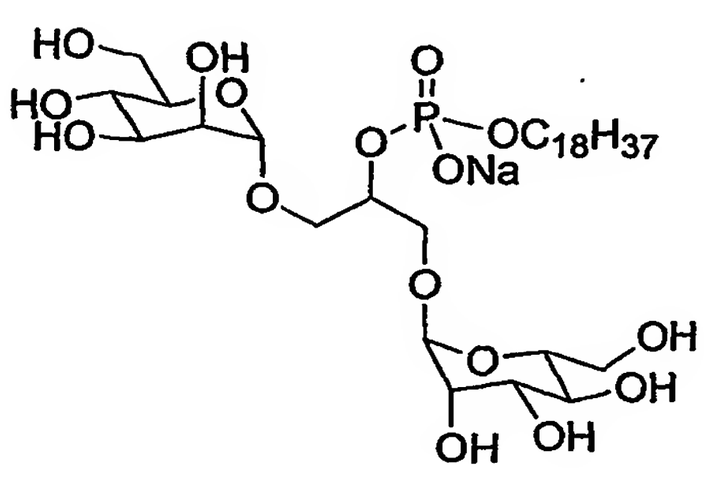
35. A composition of formula (I), as defined in claim 1, comprising



36. A composition of formula (I), as defined in claim 1, comprising



37. A composition of formula (I), as defined in claim 1, comprising



38. A composition of formula (I), as defined in claim 1, comprising